

The Diesel Emissions Model and Light Duty Vehicles

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Everyone Needs A Diesel Emissions Model

- ◆ EPA, States
- ◆ Industry and Other Stakeholders
- ◆ Automakers support this effort

Why Automakers Care

- ◆ Automakers need light duty diesel as an option for increasing fuel economy
- ◆ To meet Tier 2, LDDVs need very clean diesel fuel
 - New 15 ppm sulfur rule helps a lot as first step
 - More is needed, ASAP: lower sulfur, lower aromatics/PNAs, higher cetane, lubricity, etc.



LDDV Progress

- ◆ Lots of research at DOE (and companies)
 - Diesel Emissions Control – Sulfur Effects (DECSE)
 - Advanced Petroleum-Based Fuels (APBF)
- ◆ Real progress, LDDV on track
 - Need for ULSD demonstrated
 - Automakers confident LDDV will meet Tier 2, given clean enough fuel



Use of the Model

- ◆ States need NOx and PM emission reductions now
- ◆ States need to know if regulating diesel fuel beyond federal limits will help
 - Automakers already know it will
 - World-Wide Fuel Charter shows why, how
 - Successful California model: high cetane, low aromatics



Benefits of California Diesel Fuel Standards

Data Derived from Applying EPA Model Results to Nationwide and Los Angeles Fuels (1995 - 2000 Average from AAM Surveys).

Percent Change from Nationwide Fuels		
Emissions Species	Overall Effect %	Maximum Effect %
HC	-19.2	-
NOx	-6.1	-8.1
PM	-8.5	-12.5

Fuel Differences: Sulfur, 333 to 130 ppmS; Aromatics, 34.4 to 21.9%; Cetane, 44.1 to 47.9; Cetane Index, 0.8 to 4.4.

Main Parameters: HC = Cetane, 58% & Index, 47%; NOx = Aromatics, 57%, Gravity, 29%, Index, 16%; PM = Gravity, 30%, Aromatics, 26%, Sulfur, 17%.

Model Scope

- ◆ Current focus is HDDV, but --
- ◆ LDDV fleet likely to grow, if clean enough fuel is available
- ◆ EPA is in a better position than states to consider future changes in the LDV fleet



Gasoline Regulatory Model

- ◆ Historically, EPA's approach has been to limit regulated fuels (except lead, sulfur) to narrowly-defined areas
- ◆ This approach doesn't work anymore
 - Vehicle technology getting too sensitive
 - Vehicles too mobile (!)
 - Results in boutique fuels



Ultimate Goal

- ◆ Clean National Diesel Fuel (and Gasoline)
- ◆ If national fuels are clean enough, then states won't need to consider special blends
- ◆ Whole country will benefit
 - Emissions, fuel economy, fuel supply & pricing
- ◆ More benefits, less cost in the long run



Conclusion

- ◆ EPA should make the model work for LDDV, too
- ◆ Important to get the model right
 - Will help keep up with changing fleet
 - Will improve policy-making